Case of Obstruction in the Arteries from an internal Cause.

By James Syme, Esq. Fellow of the Royal College of Surgeons in London and Edinburgh, and Lecturer on Surgery in Edinburgh.

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On the evening of Tuesday the 22d January I was asked to meet Mr Lizars in consultation, on the case of Alexander Young, a farm-servant on the estate of Riccarton.

I found the patient a thin, rather unhealthy-looking man, aged 58. His pulse was 90, soft, and moderately full. His tongue was moist and clean. His mind, though easily agitated, was free from delirium or confusion. His countenance expressed much anxiety and pain, which he referred to the left foot and leg.

About the middle of this leg, on its outer side, there was a large aperture in the integuments, which exposed to view the anterior tibial and peroneal muscles in a state of mortification. A bright and diffused redness bounded this part superiorly and laterally; while all the limb below on the same side, as far as the ankle, was cold and livid. There was a large slough in the centre of the sole of the foot, and almost all the toes were black either on their sides or extremities. On several parts of the instep and inner side of the foot we also observed those discoloured marks so well described by Mr Pott as precursors of the mortification which occurs in old people. The spots in question seemed to be owing to death of the cutis and separation of the cuticle, without any effusion of serum to raise it into a vesicle.

I was told that in the beginning of December he had suffered from pain in the left side, together with oppression in breathing, for which complaints he had been repeatedly blooded and blistered. He was much relieved by these measures; but on the 30th of the same month he had a relapse,—complaining of pain in the right side under the false ribs, shivering, and uneasiness in both legs, but particularly the left one. On the following day he was again blooded from the arm and leeched on the right side. A blister was then applied to the chest, and repeated sinapisms to the foot. The left leg being then painful, was subjected to warm bathing, friction with liniments, sinapisms, leeches, and, lastly, a blister, which was soon followed by sloughing of the skin over which it had been placed. About the same time a blister was applied to the sole of the foot, which also was succeeded by death of the part concerned. An inci-

sion was afterwards made through the dead skin of the leg, and a *seton* introduced. The mortification had thus existed about a fortnight previous to the time I saw him, and had not extended upwards.

Having fully considered all the circumstances now related, we were unanimously of opinion (viz. the practitioner who had treated the case from its commencement, another gentleman who had been consulted after the gangrene appeared, Mr Lizars, and myself,) that the disease, if allowed to proceed, must inevitably and speedily destroy the patient; that there was reason to think the mortification might in part be owing to the severe treatment which the limb had received in the first instance; and therefore that amputation afforded, though certainly very little, nevertheless, some chance of escape from destruction otherwise certain.

This opinion being distinctly explained to the patient and his friends, it was agreed that he should submit to the operation, which, with the assistance of Mr Lizars, I accordingly performed above the knee.

On examining the limb, which we did very carefully the following day, we found the artery, where cut across, quite pervious and apparently sound in its coats. On entering the popliteal cavity it became firmly obstructed by a dense white coagulum, like that lining old aneurisms, and continued to be so all the way to its division into the peroneal and tibial arteries, which also were obstructed to the extent of an inch and a-half from their origin; beyond this they were pervious and apparently healthy. The obstructed vessel seemed somewhat contracted, particularly about the middle of the popliteal portion, its coats were here also thicker than usual, and adhered to the clot. We could not discern the smallest speck of ossification or other morbid degeneration in any part of the artery. The vein was much thickened in its coats, so as to resemble an artery, but was not obstructed, or in other respects different from its usual condition.

As the patient bore the operation well—was freed from the distracting pain which he previously suffered—and continued to do well for several days, I flattered myself with having struck at the root of the evil. On Sunday the 25th I saw him for the first time after the operation. His appearance was then much improved, and nearly half of the stump had healed by the first intention; but his pulse and respiration were very unsatisfactory; the former being 120 and undulating, the latter also much hurried. On Monday he complained of pain in the chest. On Wednesday night he died.

The dissection was performed on Friday, in the presence of all the gentlemen who had been concerned in the case.

The remaining inferior extremity was free from any appearance of disease.

On the outer side of the stump, all the way up to the hip, the cuticle was detached, and the muscles separated from each other by a purulent effusion.

The external appearance of the lungs was quite healthy, excepting a little emphysema at the upper part, but their texture was remarkably softened, as if they had recently suffered from inflammatory action. This change was particularly observed at the posterior and lower part.

In the substance of the spleen there was a large abscess, the parietes of which were strengthened by strong adhesions to the diaphragm, stomach, &c.

The heart was extremely soft, so that the finger could be pushed through its substance with great ease. The arch of the aorta was not at all dilated, nor altered in the textures of its coats, but its inner surface was very red, and seemed as if not so smooth as usual, having a velvety sort of aspect, and appeared, moreover, somewhat softened. The abdominal portion of the aorta was filled with dark half-coagulated blood, but retained its usual colour. The right internal iliac artery was firmly obstructed from its origin, as were the right and left internal iliac veins. The left femoral artery was pervious all the way to its extremity, where the ligature remained, but the profunda and corresponding vein were firmly obstructed, as were also the same vessels of the right side. The right femoral was pervious, but the popliteal was obstructed precisely as I have already described the left one, which was amputated.

We searched carefully for traces of chronic disease in the arterial system, but could find none; not the smallest trace of osseous or other degeneration. I have since found a small scale at the origin of each internal iliac, but how inconsiderable, and how little affecting the inner surface of the artery, will appear from the fact of its having been overlooked at the dissection, when some of the parties present were very diligent in searching for such morbid changes.

I do not recollect of ever dissecting a subject so far advanced in life whose arteries were in a more healthy condition as to texture.

My opinion of the case is, that it was one of acute inflammation of the arteries, similar to the one recorded in Mr Hodgson's Treatise on the Blood-Vessels, and similar to those ~~very~~ rare cases in which the ~~vessels were~~ obstructed from effusion consequent on inflammation of their coats.

The different obstructions found at the dissection must either have existed at the time of the operation or taken place after

it. If they did not exist then, there was nothing to prevent the operation from being successful, and if they existed when it was performed, then it must be allowed that the collateral circulation which had sufficed so long might have nourished the limb permanently; so that, in either view of the case, the operation afforded a chance of recovery.

As to the general question respecting amputation on account of gangrene, I certainly think that the operation is not proper when the disease commences without any external cause. Thus a few days before the case above related happened, I was consulted respecting a patient about 40, whose foot and leg had mortified, without any apparent cause whatever; but though the friends were very anxious to have the limb removed, I would not consent to do so, as there could be no doubt that the disease would continue to extend after the operation.

In conclusion, I venture to suggest that obstruction of arteries, as a consequence of effusion from their own coats, may not be so rare an occurrence as it would appear to be, from the extreme rarity of such cases on record. It has often been remarked that the vessels leading to or from a mortified part were rendered impervious by coagulum; and this circumstance has hitherto been explained loosely as a consequence of the mortification, as an effort of nature to prevent hemorrhage. But it is well known, as I can testify from repeated observation, that the vessels are not always obstructed, which they ought to be if the obstruction were the effect of mortification. And, therefore, I think it may reasonably be asked, is not the obstruction rather the cause of mortification in those cases where it exists? The coagulum certainly does not look like one resulting from more stagnation of blood in the vessels; since, instead of being soft, bloody, and *smaller* than the calibre of the vessel, it is firm, white, and closely impacted, so as to render it difficult to lay open the vessel without injury to its contents.

I have long been satisfied that ossification alone is not sufficient to occasion mortification, since, were it so, seven people out of ten who have passed the age of sixty ought to suffer from mortification of the toes; and I have no doubt that, in addition to the ossification, there is some farther obstruction, as from contraction of the vessel, of which there is a specimen in my possession, the aorta hardly admitting the little finger, or from coagulation, of which also I have a specimen, in the femoral artery of an old man who died of this miserable disease. The vessel is completely plugged for the extent of five or six inches, by an exceedingly firm white fibrinous coagulum.

75, George Street,
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